AMENDMENTS TO THE CLAIMS

No claims have been amended, canceled, or added. Claims 1-24 are pending. This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

1. (Previously Presented) A computer-implemented method for processing data using a computer system having processor, memory, and data storage subsystems, method comprising:

providing a mirror data structure to represent a first data structure;

supplying input data to a plurality of parser analysis engines via snapshots of the mirror data structure;

operating on the snapshots by the plurality of parser analysis engines to form a second data structure, wherein the second data structure includes at least a first set of leaf nodes under a first ancestor node and a second set of leaf nodes under a second ancestor node:

identifying one or more potential candidate nodes for the first ancestor node via the processor based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the first set;

identifying one or more potential candidate nodes for the second ancestor node via the processor based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the second set;

assigning the first ancestor node based on a selection of the potential candidate node most often identified as associated with the leaf nodes in the first set; and

assigning the second ancestor node based on a selection of one or more criteria other than the potential candidate node most often identified as associated with the leaf nodes in the second set.

2. (Previously Presented) A computer-implemented method according to claim 1, wherein assigning the second ancestor node is based upon the second most often identified potential candidate node.

3. (Previously Presented) A computer-implemented method according to claim 1, wherein assigning the second ancestor node comprises creating a new node.

4. (Previously Presented) A computer-implemented method according to claim 1, further comprising:

determining which potential candidate node to assign as the first ancestor node and which potential candidate node to assign as the second ancestor node, based, at least in part, on a determination of which arrangement of potential candidate nodes will most reduce data rewrite processing operations when converting an original document data structure to a form represented by the second data structure.

5. (Previously Presented) The computer-implemented method of claim 1, further comprising: receiving user touch input via a touch-sensitive user input device.

6. (Previously Presented) A computer-implemented method for processing data using a computer system having processor, memory, and data storage subsystems, method comprising:

transforming data from a first data structure to a second data structure via one or more intermediate mirror data structures, wherein the second data structure includes at least a first set of leaf nodes under a first ancestor node and a second set of leaf nodes under a second ancestor node;

identifying one or more potential candidate nodes for the first ancestor node via the processor based, at least in part, on parent nodes from the first data structure associated with the leaf nodes in the first set;

identifying one or more potential candidate nodes for the second ancestor node via the processor based, at least in part, on parent nodes from the first data structure associated with the leaf nodes in the second set;

assigning the first ancestor node based on a selection of the potential candidate node most often identified as associated with the leaf nodes in the first set, wherein the assigned first ancestor node comprises data preserved and maintained from the first data structure; and

assigning the second ancestor node based on a selection of one or more criteria including the potential candidate node most often identified as associated with the leaf nodes in the second set, wherein:

said transforming data, said identifying one or more potential candidate nodes for the first ancestor node, said identifying one or more potential candidate nodes for the second ancestor node, said assigning the first ancestor node, and said assigning the second ancestor node are all conducted incrementally as additional input is received.

7. (Previously Presented) A computer-implemented method according to claim 6, wherein assigning the second ancestor node is based upon the second most often identified potential candidate node.

8. (Previously Presented) A computer-implemented method according to claim 7, wherein assigning the first ancestor node and assigning the second ancestor node further is based, at least in part, on a determination of which arrangement of potential candidate nodes will most efficiently reuse the leaf nodes when converting an original document data structure to a form represented by the second data structure.

9. (Previously Presented) A computer-implemented method according to claim 6, wherein assigning the second ancestor node comprises creating a new node.

10. (Previously Presented) A computer-implemented method according to claim 6, further comprising:

creating a revised document data structure based on the second data structure and the assigned potential candidate nodes.

11. (Previously Presented) A computer-implemented method according to claim 6, wherein the assigned first ancestor node differs from the assigned second ancestor node.

12. (Previously Presented) A computer-implemented method according to claim 6, wherein the transforming includes parsing electronic ink data into a hierarchical data structure corresponding to the second data structure.

13. (Original) A computer-readable medium having computer-executable instructions stored thereon for performing the method of claim 6.

14. (Previously Presented) A data processing computer system having processor, memory, and data storage subsystems, the data processing computer system comprising:

a computer-readable medium containing data representing a first data structure;

a parser, comprising: one or more mirror data structures of the first data structure received by one or more parser analysis engines, wherein the one or more parser analysis engines operate concurrently with user input to the first data structure; and

a processor programmed and adapted to: (a) transform the data in the first data structure to a second data structure via the one or more mirror data structures, wherein the second data structure includes at least a first set of leaf nodes under a first ancestor node and a second set of leaf nodes under a second ancestor node; (b) identify one or more potential candidate nodes for the first ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the first set; (C) identify one or more potential candidate nodes for the second ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the second set; (d) assign the first ancestor node based on a selection of the potential candidate node most often identified as associated with the leaf nodes in the first set; and (e) assign the second ancestor node based on a selection of one or more criteria including the

potential candidate node most often identified as associated with the leaf nodes in the second set.

15. (Previously Presented) A data processing computer system according to claim 14, wherein the processor is further programmed and adapted to assign the second ancestor node based upon the second most often identified potential candidate node.

16. (Previously Presented) A data processing computer system according to claim 14, wherein the assigned first ancestor node differs from the assigned second ancestor node.

17. (Previously Presented) A data processing computer system according to claim 14, wherein the processor is further programmed and adapted to determine which potential candidate node to assign as the first ancestor node and which potential candidate node to assign as the second ancestor node based, at least in part, on assigning more weight to a leaf node which contains additional data or information when converting an original document data structure to a form represented by the second data structure.

18. (Previously Presented) A data processing computer system having processor, memory, and data storage subsystems, the data processing computer system comprising:

a computer-readable medium containing data representing a first data structure;

one or more mirror data structures representing the first data structure and sent to a corresponding one or more parser analysis engines, wherein the one or

more parser analysis engines operate on the one or more mirror data structures concurrently with user input to the first data structure; and

a processor programmed and adapted to: (a) transform data in the first data structure to a second data structure via the one or more mirror data structures, wherein the second data structure includes at least a first set of leaf nodes under a first ancestor node and a second set of leaf nodes under a second ancestor node; (b) identify one or more potential candidate nodes for the first ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the first set; (c) identify one or more potential candidate nodes for the second ancestor node based, at least in part, on ancestor nodes from the first data structure associated with the leaf nodes in the second set; (d) assign the first ancestor node based on a selection of the potential candidate node most often identified as associated with the leaf nodes in the first set, wherein the assigned first ancestor node comprises data preserved and maintained from the first data structure; and (e) assign the second ancestor node based on a selection of one or more criteria other than the potential candidate node most often identified as associated with the leaf nodes in the second set.

19. (Previously Presented) A data processing computer system according to claim 18, wherein the processor is further programmed and adapted to assign the second ancestor node based upon the second most often identified potential candidate node.

20. (Previously Presented) A data processing computer system according to claim 19, wherein the first ancestor node and second ancestor node are assigned at least in part, on reusing the first ancestor node or the second ancestor node when converting an original document data structure to a form represented by the second data structure.

21. (Previously Presented) A data processing computer system according to claim 18, wherein the data processing computer system comprises a user input device with a touch-sensitive display for receiving user touch input.

22. (Previously Presented) A data processing computer system according to claim 18, wherein the processor is further programmed and adapted to create a revised document data structure based on the second data structure and the assigned potential candidate nodes.

23. (Previously Presented) A data processing computer system according to claim 18, wherein the data in the first data structure represents electronic ink data.

24. (Previously Presented) A data processing computer system according to claim 18, wherein the transforming includes parsing electronic ink data into a hierarchical data structure corresponding to the second data structure.